Printed Pages: 01 **Subject Code: MTEC 021**

Paper Id: 230106 **Roll No:** | | | | | | | | | | |

M TECH
(SEM-I) THEORY EXAMINATION 2018-19
OPTICAL COMMUNICATION

Time: 3 Hours *Total Marks: 70*

Note: Attempt all Section. If required any missing data, then choose suitably.

SECTION A

1. Attempt all questions in brief. **2 x 7 = 14**

a .Explain the concept of CDMA.
b. Distinguish SONET and SDH.
c. State the concept of WDM.
d. Give the significance of solitons.
e. What is Next-Generation Optical Internet Networks?
f. What are the advantages of EDFA?
g. What are the major advantages of the coherent systems?

SECTION B

2. Attempt any *three* of the following: **7 x 3 = 21**

a) Compare the performance and applications of EDFA versus SOA.
b) Explain SONET/SDH topology? Also provide its data rates.
c) What are the underlying principles of the WDM techniques?
d) Explain Raman amplifier? Also give its working and characteristics.
e) What are the types of Solitons based on the various aspects? How are they generated?

SECTION C

3. Attempt any *one* part of the following: **7 x 1 = 7**

(a) There are different types of Semiconductor Optical Amplifiers. Explain their working mechanism to amplify the optical signal. Also discuss their respective characteristics.

(b) Explain High speed and WDM Soliton systems.

4. Attempt any *one* part of the following: **7 x 1 = 7**

(a) What is SONET/SDH? Explain its frame structure.
(b) What is IP? Compare IPv4 and IPv6.

5. Attempt any *one* part of the following: **7 x 1 = 7**

(a) What is ATM? Explain structure of ATM cell.
(b) Explain Next generation optical Internets.

6. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Compare TDMA and CDMA.
(b) Explain WDM light wave systems. What are its various types?

7. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Explain Coherent optical fiber Systems with diagram.
(b) With help of block diagram briefly explain optical TDM system.